

THE CLAIMS

What is claimed is:

- 5 1. A method for performing electrophoresis comprising:
 providing a plurality of sample fragments collectively having a first range of sizes,
 the sample fragments being tagged with a first number of dyes;
 providing a plurality of reference fragments collectively having a second range of
10 sizes which does not overlap with the first range of sizes, reference fragments of
 substantially similar sizes within the second range being tagged with a common dye from
 among said first number of dyes;
 combining the sample fragments and the reference fragments into a common
 volume;
15 causing sample and reference fragments within the common volume to separate
 along a common separation lane such that the sample fragments and the reference fragments
 are separated from one another in at least one of time and space;
 optically detecting the separated sample and reference fragments;
20 determining first color calibration information from spectral properties of detected
 reference fragments; and
 employing the first color calibration information to identify at least one property of
 the sample fragments.
- 25 2. The method according to claim 1, wherein the first and second ranges of sizes
 correspond to first and second ranges of lengths of the sample and reference fragments.
3. The method according to claim 2, wherein the sample and reference fragments
30 comprises sequences of nucleotides.
4. The method according to claim 1, wherein the plurality of reference fragments
 comprise a first number of groups of reference fragments, reference fragments within each
 group having a substantially similar size.
- 35 5. The method according to claim 4, wherein the reference fragments comprise a
 sequence of nucleotides.
6. The method according to claim 5, wherein the reference fragments within each

group comprises nucleotides having identical lengths.

7. The method according to claim 6, wherein the lengths of reference fragments within the groups are unevenly spaced.

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8. The method according to claim 5, wherein lengths of nucleotides in any one group differ from lengths of nucleotides in any other group by at least five nucleotides.

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9. The method according to claim 5, wherein lengths of nucleotides in any one group differ from lengths of nucleotides in any other group by at least ten nucleotides.

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10. The method according to claim 5, wherein lengths of nucleotides in any one group differ from lengths of nucleotides in any other group by at least twenty nucleotides.

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11. The method according to claim 5, wherein lengths of nucleotides in any one group differ from lengths of nucleotides in any other group by at least forty nucleotides.

12. The method according to claim 1, wherein the largest sample fragment is smaller than the smallest reference fragment.

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13. The method according to claim 1, wherein the largest reference fragment is smaller than the smallest sample fragment.

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14. The method according to claim 1, wherein the first color calibration information is calculated for each of a plurality of separation lanes.

15. A method of processing electrophoresis data collected from a single separation lane during a single electrophoresis run, the data being representative of spectral information from fluorescent emissions and being received over a plurality of color channels, the method comprising:

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determining color calibration information from a first portion of the electrophoresis data; and

identifying fluorescent species from a second portion of the electrophoresis data, based on the color calibration information from the first portion obtained during the same electrophoresis run.

16. The method according to claim 15, wherein the determining step comprises forming representative calibration vectors for each of a plurality of dyes attached to reference fragments of known length.

5 17. In an electrophoretic separation apparatus having associated therewith a computer memory having code stored therein, and a detector configured to collect spectral information from fluorescent species over a plurality of color channels during a single electrophoresis run conducted on a single separation lane, the improvement comprising:
10 code for determining color calibration information from a first portion of the spectral information obtained during an electrophoresis run; and
 code for identifying fluorescent species from a second portion of the spectral information obtained during the same electrophoresis run, based on the color calibration information obtained from the first portion of the spectral information.

15 18. The apparatus according to claim 17, wherein the code for determining includes code for forming representative calibration vectors for each of a plurality of spectral peaks found in the first portion.

20 19. A computer readable medium have executable software code stored thereon, the code including:

 code for determining color calibration information from a first portion of spectral information obtained during an electrophoresis run; and
25 code for identifying fluorescent species from a second portion of the spectral information obtained during the same electrophoresis run, based on the color calibration information obtained from the first portion of the spectral information, wherein
 the code is configured to obtain the first and second portions of spectral
30 information from a single data source.

 20. The computer readable medium according to claim 19, wherein the code for determining includes code for forming representative calibration vectors for each of a plurality of spectral peaks found in the first portion.